



Enabling Grids for E-science

The GLDA training infrastructure

www.eu-egee.org

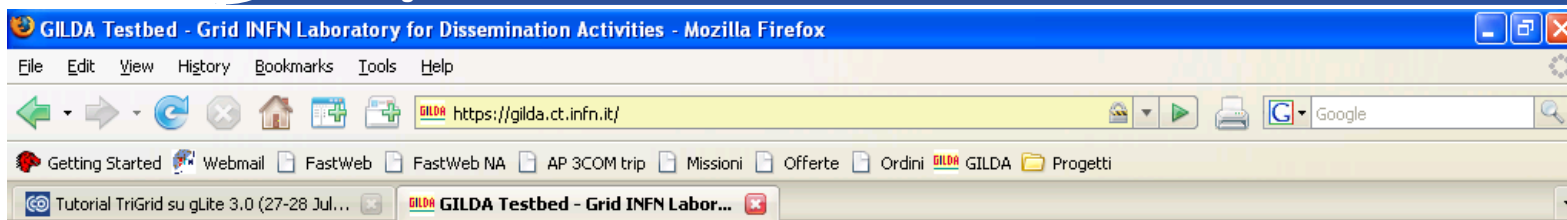


- **We are using the GILDA testbed this week**
 - The production EGEE / SEE-GRID grid looks like this!
 - Current EGEE production middleware: gLite 3.0.x or gLite 3.1
 - GILDA: gLite 3.0.x
 - GILDA is one VO on EGEE → resources for training and application prototyping

- **The practical exercises are to illustrate “how”**
 - Not using typical jobs for running on a grid!
 - But to show how grid services are used, jobs are submitted, output retrieved,...
 - **Middleware overhead** will be significant for our short jobs

- **Today we will use command-line tools on the GILDA User Interface (UI) machine**
 - “UI” will be your interface to the GILDA Grid
 - Where your private key and certificate files are held
 - Where client tools are installed

- **Why t-infrastructure?**
 - Training is necessary!
 - e-Infrastructure for production
 - t-Infrastructure for training
- **Need guaranteed response for tutorials; limit the vulnerability of production systems**
 - use training grid
 - have a training CA – lightweight authentication
 - able to change middleware to prepare participants for future releases on production system
 - need safe resources for installation training
 - easy entry point for new communities



New GILDA usage rule

GILDA (G rid I nfn L aboratory for D issemination A ctivities)

is a virtual laboratory to demonstrate/disseminate the strong capabilities of grid computing.

GILDA consists of the following elements:

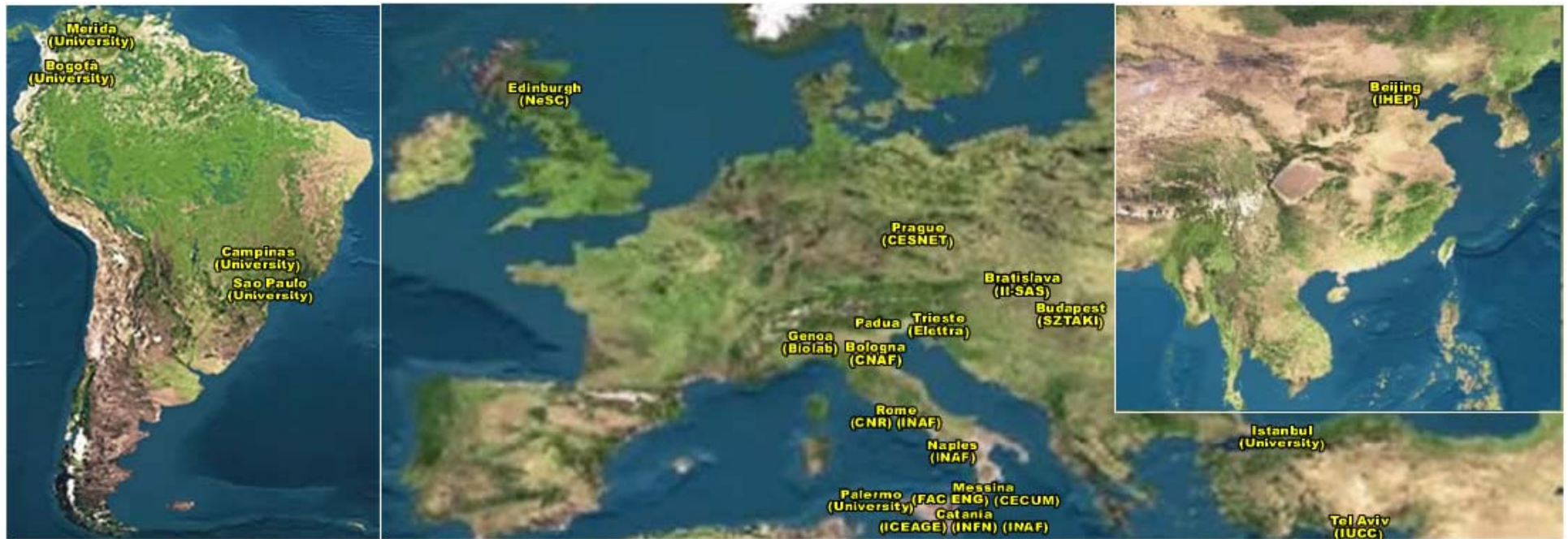
- [the GILDA Testbed](#): a series of sites and services (Resource Broker, Information Index, Data Managers, Monitoring tool, Computing Elements, and Storage Elements) spread all over Italy and the rest of the world on which the latest version of the [INFN Grid](#) middle-ware (fully compatible with [gLite](#)) is installed;
- [the Grid Demonstrator](#): a customized version of the full [GENIUS web portal](#), jointly developed by INFN and [NICE](#), from where **everybody** can submit a pre-defined set of applications to the GILDA Testbed;
- [the GILDA Certification Authority](#): a fully functional Certification Authority which issues 14-days X.509 certificates to everybody wanting to experience grid computing on the GILDA Testbed;
- [the GILDA Virtual Organization](#): a Virtual Organization gathering all people wanting to experience grid computing on the GILDA Testbed; the GILDA Virtual Organization is based on the Virtual Organization Membership Service (VOMS) developed by INFN;
- [the Grid Tutor](#): based on a full version of the [GENIUS web portal](#), to be used only during [grid](#)

- [News](#) 
- [List of Tutorials](#)
- [Request a Tutorial](#)
- [Posters](#)
- [Video Tutorials](#)
- [User Interface PnP](#)
- [Virtual Services](#)
- [Instructions for Users](#)
- [Instructions for Sites](#)
- [Training Material \(wiki\)](#)
- [GILDA Forge](#) 
- [Support System](#)
- [Useful Links](#)

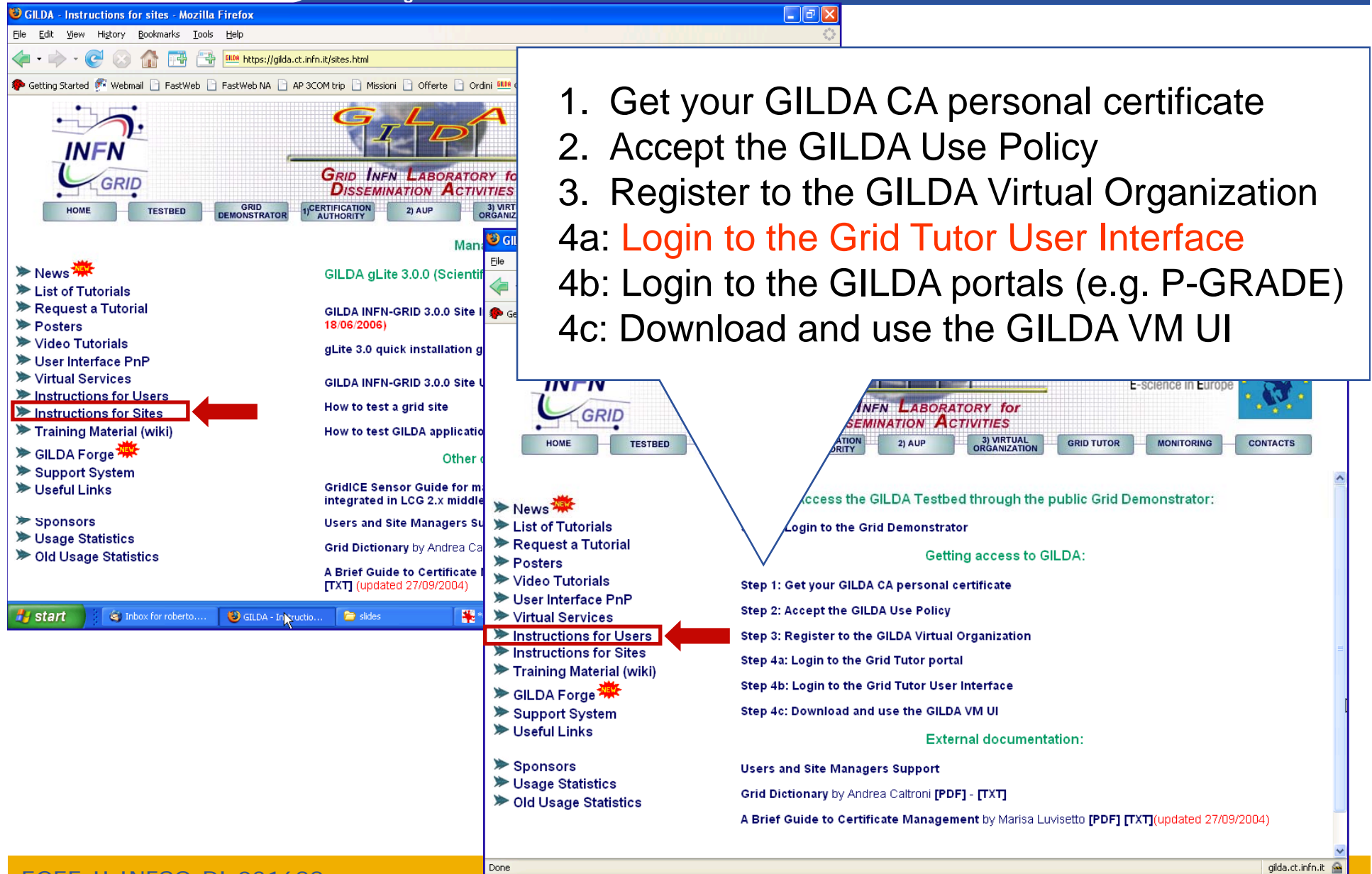
- [Sponsors](#)
- [Usage Statistics](#)
- [Old Usage Statistics](#)

Done

gilda.ct.infn.it



~20 sites in 3 continents



The screenshot shows the GILDA website interface. A list of steps is overlaid on the right side of the page, with red arrows pointing to specific navigation links in the website's menu. The steps are:

1. Get your GILDA CA personal certificate
2. Accept the GILDA Use Policy
3. Register to the GILDA Virtual Organization
- 4a: Login to the Grid Tutor User Interface
- 4b: Login to the GILDA portals (e.g. P-GRADE)
- 4c: Download and use the GILDA VM UI

The website navigation menu on the left includes the following items:

- News
- List of Tutorials
- Request a Tutorial
- Posters
- Video Tutorials
- User Interface PnP
- Virtual Services
- Instructions for Users
- Instructions for Sites** (highlighted with a red arrow)
- Training Material (wiki)
- GILDA Forge
- Support System
- Useful Links
- Sponsors
- Usage Statistics
- Old Usage Statistics

The website header features the INFN GRID logo and navigation buttons: HOME, TESTBED, GRID DEMONSTRATOR, CERTIFICATION AUTHORITY, 2) AUP, and 3) VIRTUAL ORGANIZATION. The main content area includes a sidebar with a 'Manage GILDA' section and a main content area with various links and information.

Request a GILDA personal certificate - Windows Internet Explorer

https://gilda.ct.infn.it/CA/mgt/restricted/ucert.php

Certificate Error

Google

This website wants to run the following add-on: 'Microsoft Certificate Enrollment Control' from 'Microsoft Corporation'. If you trust the website and the add-on and want to allow it to run, click here...

The GILDA Certification Authority

Request a GILDA personal certificate

WARNING: the procedure requires the application of the security patch you can find at <http://www.microsoft.com/technet/security/bulletin/MS02-048.asp>

- GILDA certificates are valid for two weeks
 - not for a year as normal certificates
- GILDA certificates are renewable
 - like normal certificates

Fill out the form

No face-to-face

First name and last name:	<input type="text"/>
Account username <small>(max 8 characters; only not-accented letters and digits are allowed, both lowercase and uppercase):</small>	<input type="text"/>
Account password <small>(only not-accented letters and digits are allowed, both lowercase and uppercase):</small>	<input type="password"/>
Confirm account password <small>(only not-accented letters and digits are allowed, both lowercase and uppercase):</small>	<input type="password"/>
E-mail:	<input type="text"/>

Submit the request Clear form



Enabling Grids for E-science

The GILDA Virtual Organization (<https://voms.ct.infn.it:8443/voms/gilda/>)

VOMS - Welcome to the gilda VO - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://voms.ct.infn.it:8443/voms/gilda/

Getting Started Webmail FastWeb FastWeb NA AP 3COM trip Missioni Offerte Ordini GILDA Progetti

UserTutorials < GILDA < Grid CT WIKI VOMS - Welcome to the gilda VO

Welcome to the gilda VO

The gilda VO

FOR VO USERS

- My membership details
- New user registration
- My requests

FOR VO MANAGERS

- Administer the VO
- Handle requests
- Check audit data

CONFIGURATION

- Configuration information
- List all VOs on this site

VOMS Admin 1.2.1
Release 1
Copyright © 2005 CERN
on behalf of the EU EGEE

Welcome to VOMS!
VOMS is the Virtual Organization Membership Service

VOMS - Virtual Organization Membership Service - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://voms.ct.infn.it:8443/voms/gilda/webui/admin/users/list

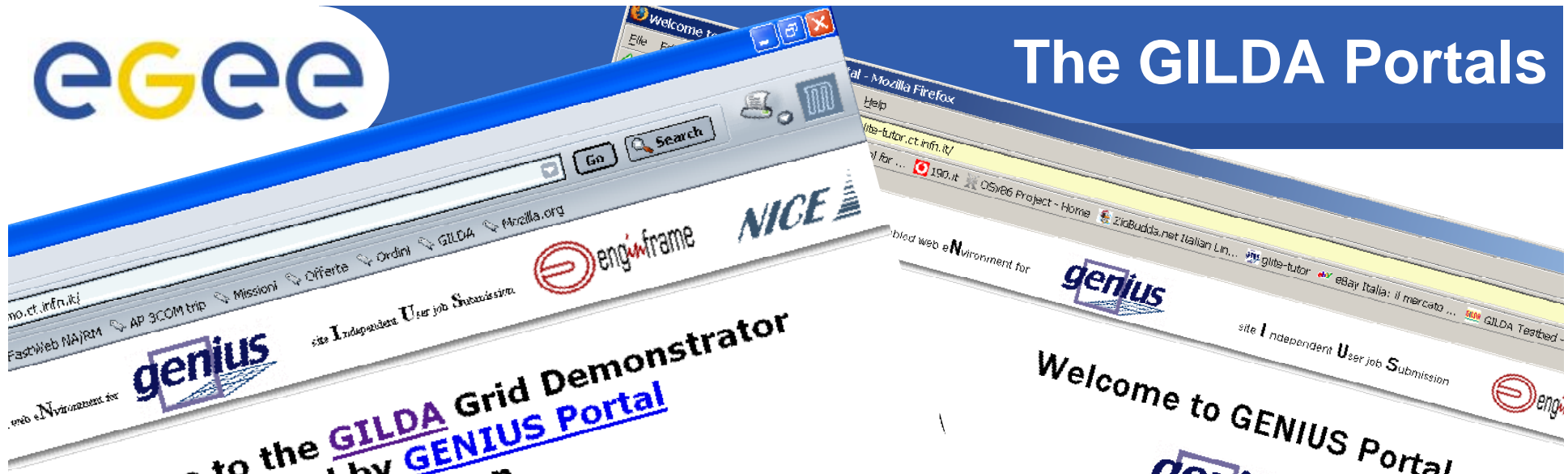
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644 people registered in the GILDA VO!
349 "real" users + 285 "generic" users
~30 "trainers"

You can also join GILDA VO with one year long certificate

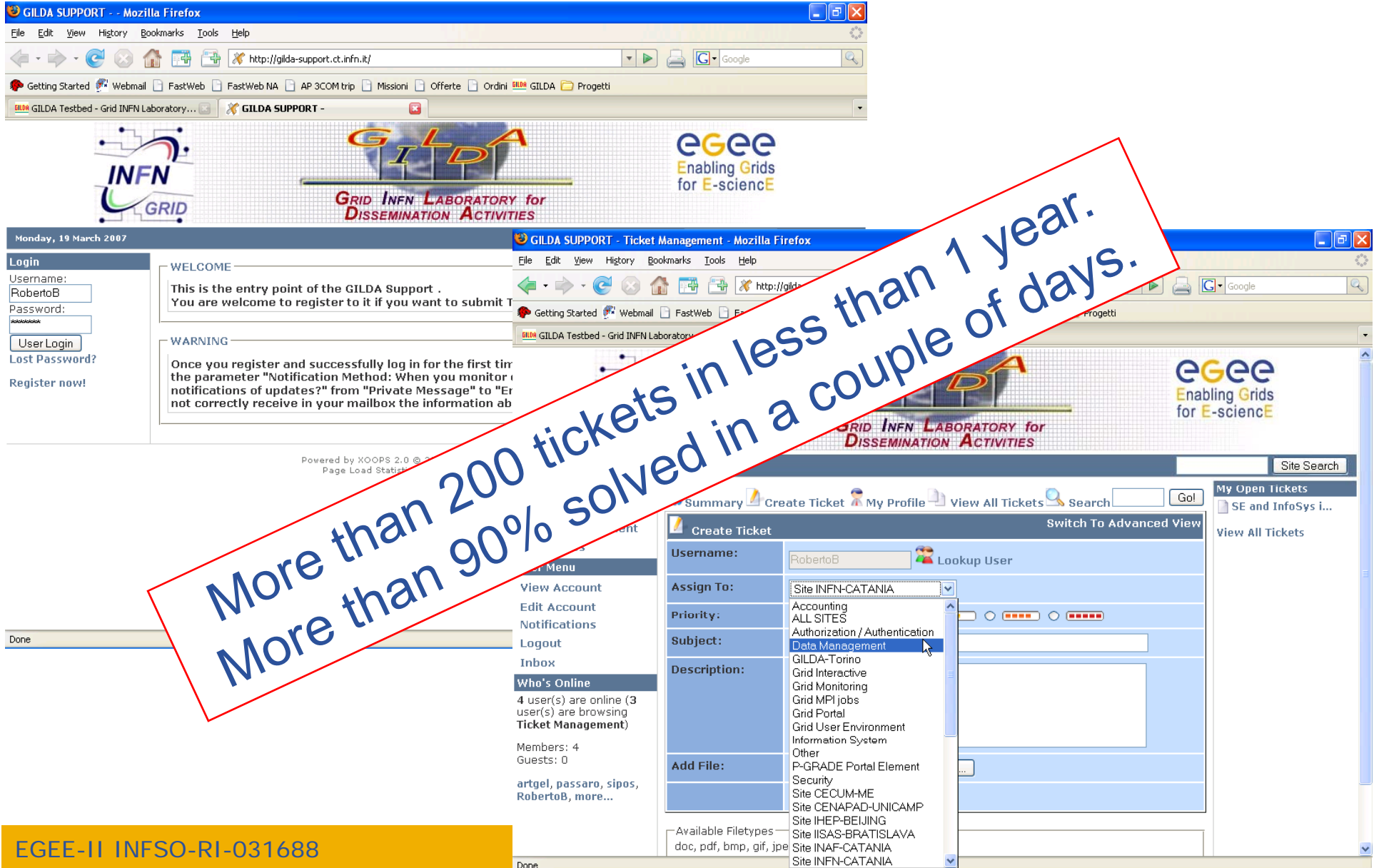
SEARCH FOR GROUPS	CREATE A NEW GROUP	ROLES	LIST THE ROLES	SEARCH FOR ROLES	ADD A NEW ROLE	GLOBAL ACL
		/C=IT/O=INFN/OU=Personal Certificate/L=Catania/CN=Salvatore Monforte/Email=salvatore.monforte@ct.infn.it				edit remove manage attributes
		/O=GermanGrid/OU=FZK/CN=Harald Kommayer				edit remove manage attributes
		/C=IT/O=INFN/OU=Personal Certificate/L=CNAF/CN=Valerio Venturi/Email=valerio.venturi@cnafe.infn.it				edit remove manage attributes
		/C=AT/O=AustrianGrid/OU=JKU/OU=GUP/CN=Peter Praxmarer				edit remove manage attributes
		/C=CH/O=CERN/OU=GRID/CN=Marc Ozonne 2721				edit remove manage attributes
		/C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Cristina Aiftimiei				edit remove manage attributes
		/C=IT/O=GILDA/OU=Personal Certificate/L=INFN Catania/CN=Gilda Demonstrator 01/Email=gilda-ca@ct.infn.it				edit remove manage attributes
		/C=IT/O=GILDA/OU=Personal Certificate/L=INFN Catania/CN=Gilda Demonstrator 02/Email=gilda-ca@ct.infn.it				edit remove manage attributes

- **GILDA has two central User Interface servers:**
 - **glite-tutor.ct.infn.it**
 - glite-tutor2.ct.infn.it
- **Every GILDA user has account on them**
- **SSH port is protected by firewall**
 - Send a ticket to get it opened for your IP
 - Has been opened for this training



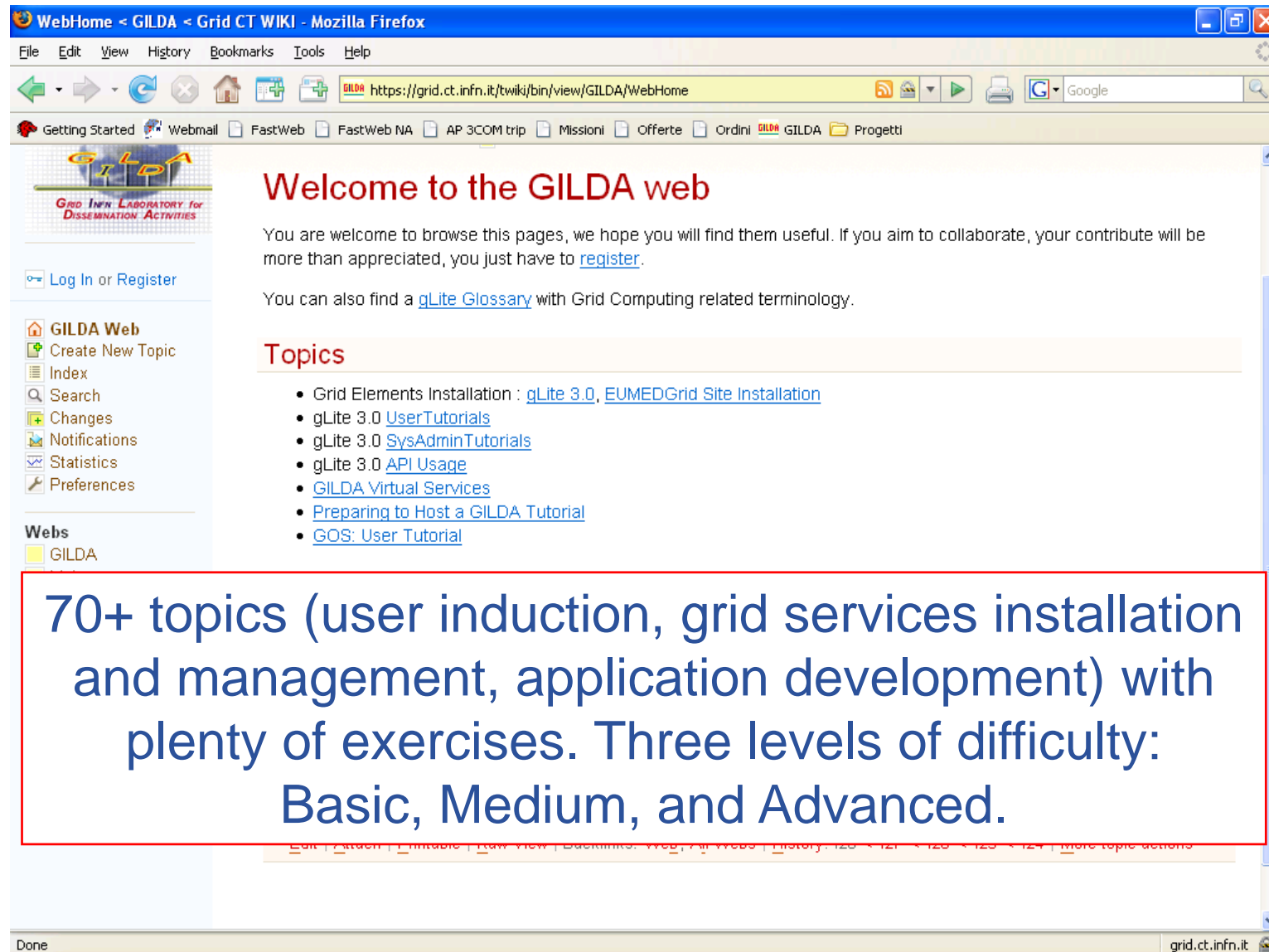
Easy to use. Hide the complexities of the middleware. Extremely useful also for self-pace learning.

Demonstrator Application



More than 200 tickets in less than 1 year.
More than 90% solved in a couple of days.

The screenshot shows the GILDA Support System interface in Mozilla Firefox. The browser window title is "GILDA SUPPORT - Mozilla Firefox" and the address bar shows "http://gilda-support.ct.infn.it/". The page header includes the INFN GRID logo, the GILDA logo (GRID INFN LABORATORY for DISSEMINATION ACTIVITIES), and the EGEE logo (Enabling Grids for E-science). The main content area is titled "GILDA SUPPORT - Ticket Management - Mozilla Firefox" and contains a "WELCOME" message, a "WARNING" message, and a "Create Ticket" form. The "Create Ticket" form includes fields for "Username" (RobertoB), "Assign To" (Site INFN-CATANIA), "Priority" (ALL SITES), and "Subject" (Data Management). A navigation menu on the left includes "View Account", "Edit Account", "Notifications", "Logout", "Inbox", "Who's Online", and "Ticket Management".



WebHome - GILDA - Grid CT WIKI - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://grid.ct.infn.it/twiki/bin/view/GILDA/WebHome

Getting Started Webmail FastWeb FastWeb NA AP 3COM trip Missioni Offerte Ordini GILDA GILDA Progetti

Welcome to the GILDA web

You are welcome to browse this pages, we hope you will find them useful. If you aim to collaborate, your contribute will be more than appreciated, you just have to [register](#).

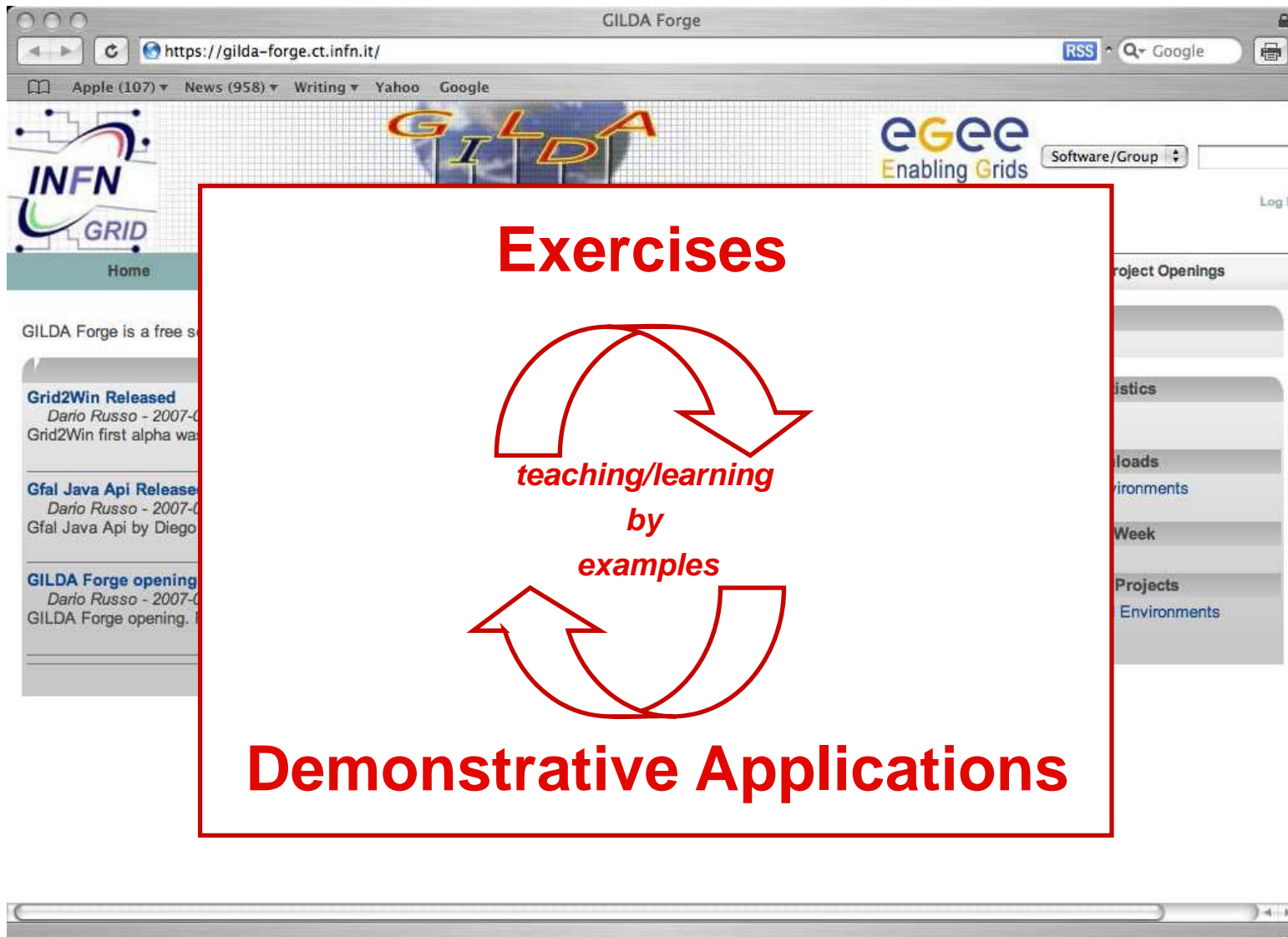
You can also find a [gLite Glossary](#) with Grid Computing related terminology.

Topics

- Grid Elements Installation : [gLite 3.0](#), [EUMEDGrid Site Installation](#)
- gLite 3.0 [UserTutorials](#)
- gLite 3.0 [SysAdminTutorials](#)
- gLite 3.0 [API Usage](#)
- [GILDA Virtual Services](#)
- [Preparing to Host a GILDA Tutorial](#)
- [GOS: User Tutorial](#)

70+ topics (user induction, grid services installation and management, application development) with plenty of exercises. Three levels of difficulty: Basic, Medium, and Advanced.

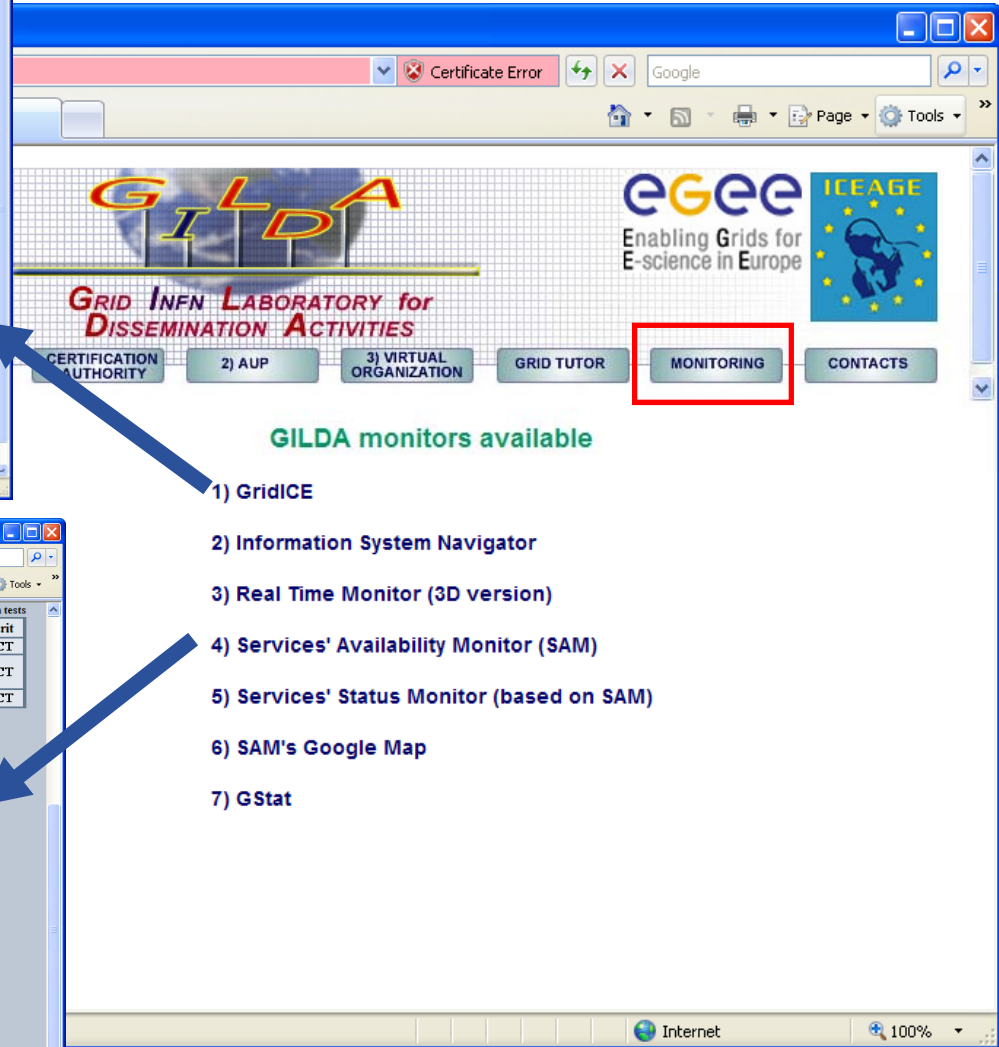
Done grid.ct.infn.it

A screenshot of a web browser displaying the GILDA Forge website. The browser's address bar shows the URL 'https://gilda-forge.ct.infn.it/'. The website header includes the 'INFN GRID' logo on the left, the 'GILDA' logo in the center, and the 'EGEE Enabling Grids' logo on the right. A navigation menu is visible at the top with links for 'Apple (107)', 'News (958)', 'Writing', 'Yahoo', and 'Google'. A search bar with the Google logo is also present. The main content area shows a 'Home' link and a list of recent news items, including 'Grid2Win Released', 'Gfal Java Api Release', and 'GILDA Forge opening'. A red-bordered box is overlaid on the page, containing a diagram with two curved arrows forming a cycle. The text 'Exercises' is at the top of the box, and 'Demonstrative Applications' is at the bottom. In the center of the cycle, the text reads 'teaching/learning by examples'.

Exercises

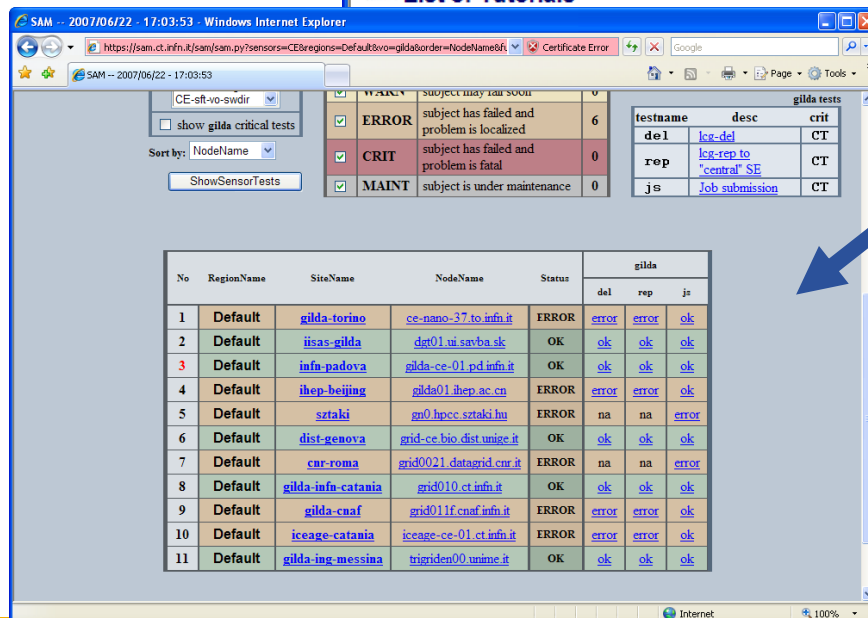
*teaching/learning
by
examples*

Demonstrative Applications



GILDA monitors available

- 1) GridICE
- 2) Information System Navigator
- 3) Real Time Monitor (3D version)
- 4) Services' Availability Monitor (SAM)
- 5) Services' Status Monitor (based on SAM)
- 6) SAM's Google Map
- 7) GStat

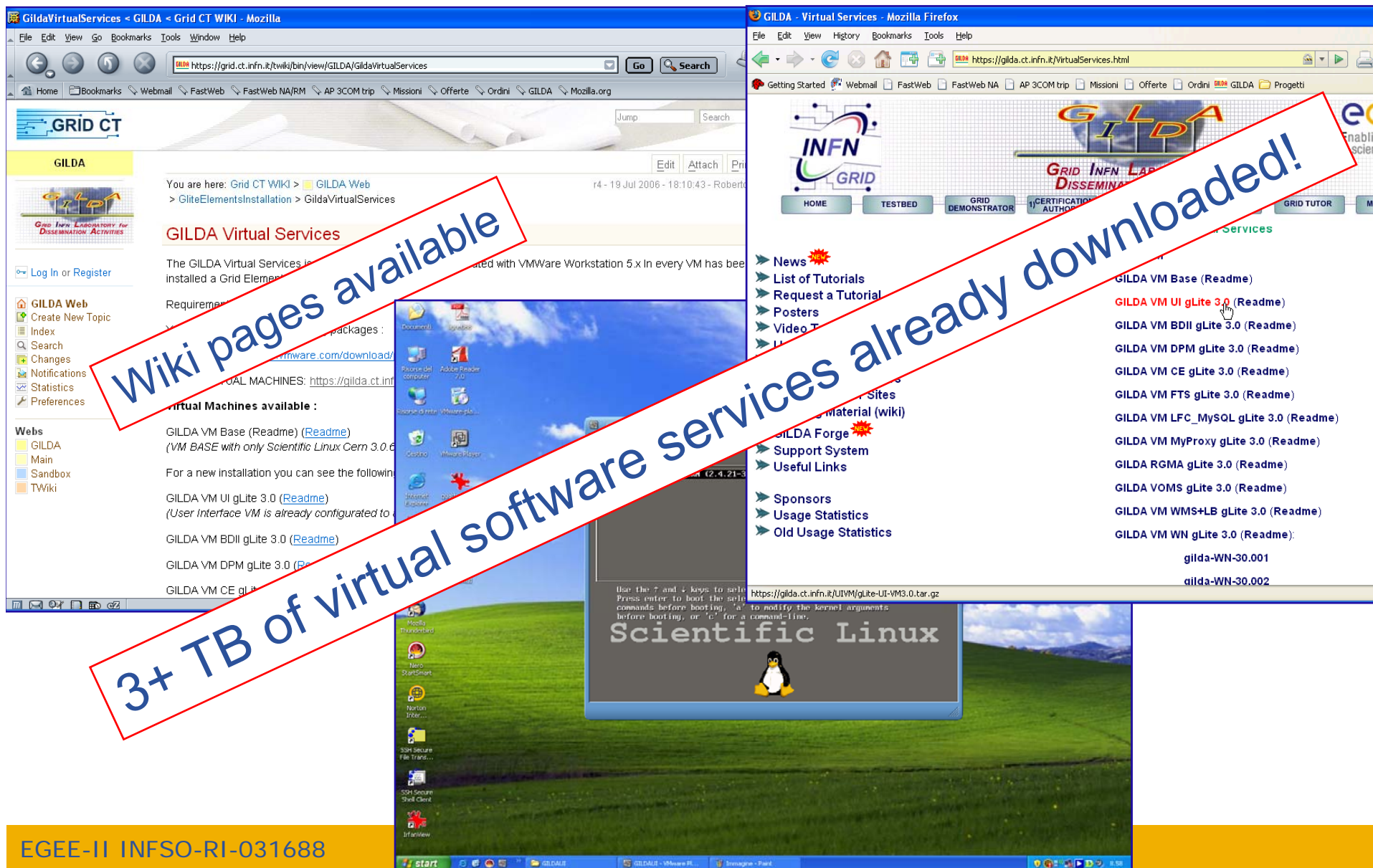


- **Certificates and private keys have been obtained from GILDA CA:**
 - usercert.pem → certificate
 - userkey.pem → private key
- **Certificates have been registered at GILDA VO**
- **Accounts have been created on User Interface**
- **Certificates and keys are available on the User Interface**

ls -l ~/.globus

```
-rw-r--r-- 1 kualalumpur23 users 1119 Dec 05 15:48 usercert.pem
-r----- 1 kualalumpur23 users  963 Dec 05 15:48 userkey.pem
-r----- 1 kualalumpur23 users  963 Dec 05 15:48 kualalumpur23.p12
```

- GILDA is provided by some 20 organisations for training events.
- You usually sign a commitment before using a grid - to make appropriate use of the resources that other organisations have opened to you
- Trust is the basis of Grid computing.
- You are trusted to be responsible in your use of GILDA.



The image shows a composite of two screenshots. The top-left screenshot is a Mozilla browser window displaying the GILDA Virtual Services page on the Grid CT Wiki. The top-right screenshot is a Mozilla browser window displaying the GILDA Virtual Services main page. The bottom portion of the image shows a virtual machine desktop environment with a Scientific Linux logo and a penguin icon. A large red diagonal banner is overlaid across the center of the image.

Wiki pages available

3+ TB of virtual software services already downloaded!

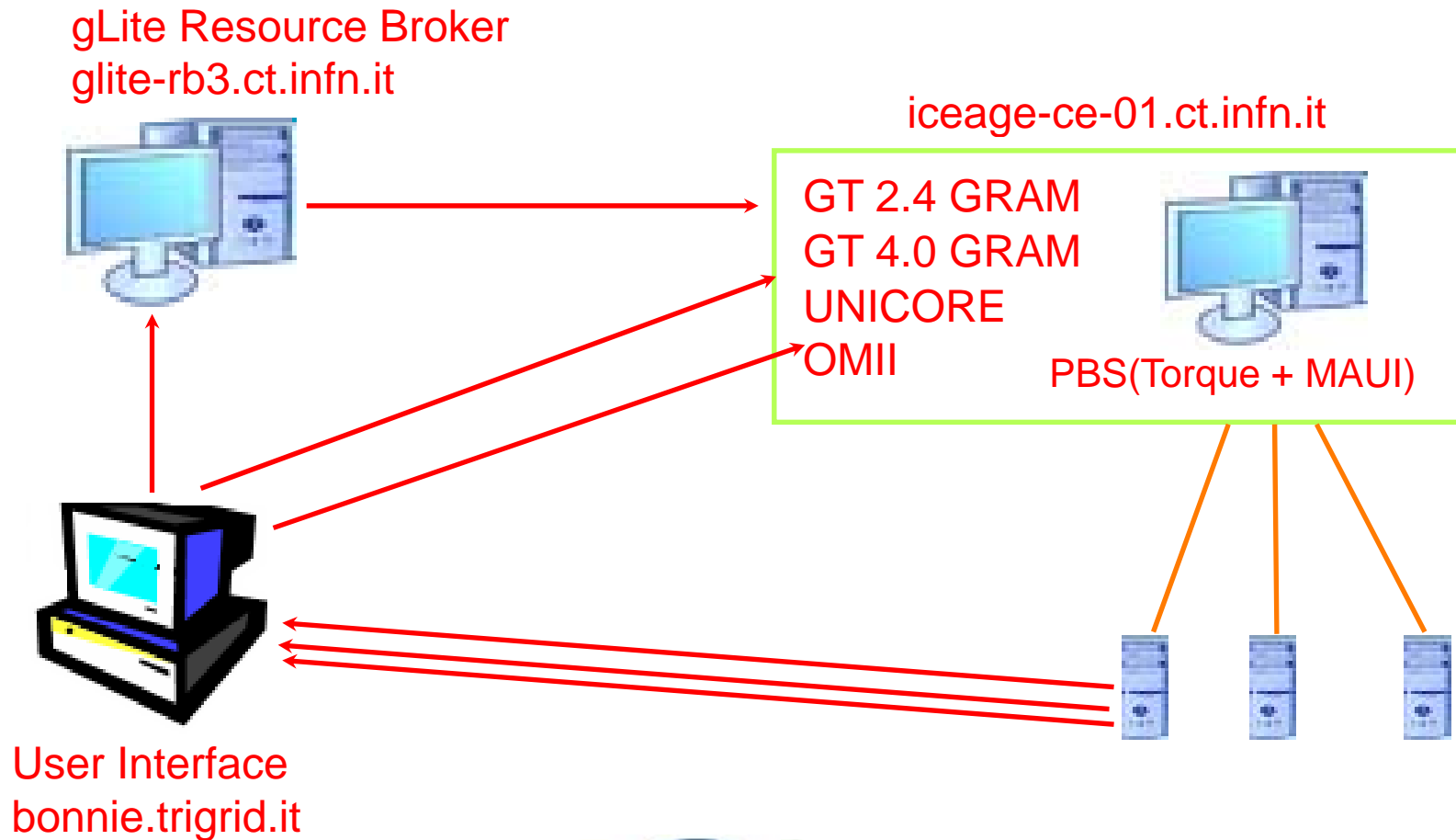
- News
- List of Tutorials
- Request a Tutorial
- Posters
- Video Tutorials
- Help
- Support System
- Useful Links
- Sponsors
- Usage Statistics
- Old Usage Statistics

Virtual Machines available :

- GILDA VM Base (Readme) ([Readme](#))
- GILDA VM UI gLite 3.0 (Readme) ([Readme](#))
- GILDA VM BDII gLite 3.0 (Readme) ([Readme](#))
- GILDA VM DPM gLite 3.0 (Readme) ([Readme](#))
- GILDA VM CE gLite 3.0 (Readme) ([Readme](#))
- GILDA VM FTS gLite 3.0 (Readme) ([Readme](#))
- GILDA VM LFC_MySQL gLite 3.0 (Readme) ([Readme](#))
- GILDA VM MyProxy gLite 3.0 (Readme) ([Readme](#))
- GILDA RGMA gLite 3.0 (Readme) ([Readme](#))
- GILDA VOMS gLite 3.0 (Readme) ([Readme](#))
- GILDA VM WMS+LB gLite 3.0 (Readme) ([Readme](#))
- GILDA VM WN gLite 3.0 (Readme) ([Readme](#))

gilda-WN-30.001
gilda-WN-30.002

- In the context of ICEAGE project the GILDA Team has carried out an important study about the co-existence of several middlewares on the same physical computing and storage resources.
- Results:
 - Super User Interface: a machine (real or virtual) with a gLite User Interface, a Globus Toolkit 4 (GT4) client, a UNICORE client and an OMII-UK client on board.
 - Super Computing Element: the same Torque/MAUI farm can execute jobs coming from gLite, GT4, UNICORE and OMII-UK.
 - The same GILDA CA certificates can be used with all the 4 different middleware implementations.



- You get your number from tutor: **XX**
- Open a terminal and connect to GILDA UI:

```
ssh kualalumpurXX@glite-tutor.ct.infn.it
```

 - GILDA UI usernames → **kualalumpurXX**
 - GILDA UI passwords → **GridKUAXX**

CASE SENSITIVE
- Open the agenda:
<http://indico.cern.ch/conferenceDisplay.py?confId=23946>

1. Basics:

- Investigate your certificate
- Create proxy with voms extension
- Investigate your proxy
- Destroy your proxy

2. Certificates in web browsers:

- Download P12 formatted certificate from .globus to a local dir.
- Import the certificate into your web browser
- Access a protected web site: SAM Grid monitor
 - <https://gilda.ct.infn.it/> → Monitoring → Number 4)

3. MyProxy:

- Upload a proxy into MyProxy server
- Delegate a proxy from MyProxy server



Enabling Grids for E-scienceE

Thank you!

www.eu-egee.org

